Prüfbericht-Nr.: *Test Report No.*:	**15087906 001**	**Auftrags-Nr.:** *Order No.*:	**154094529**	**Seite 1 von 15** *Page 1 of 15*
Kunden-Referenz-Nr.: *Client Reference No.*:	**342220**	**Auftragsdatum:** *Order date*:	**04.13.2015**	
Auftraggeber: *Client*:	**Intex Development Company limited** 9/F., Dah Sing Financial Centre, 108 Gloucester Road, Wanchai, Hong Kong			
Prüfgegenstand: *Test item*:	**Receiver for Swim Trainer**			
Bezeichnung / Typ-Nr.: *Identification / Type No.*:	**SM24101** **FCC ID: SVYSM24101-R**			
Auftrags-Inhalt: *Order content*:	**Complete test**			
Prüfgrundlage: *Test specification*:	**FCC CFR47 Part 15, Subpart B** **ANSI C63.4: 2014**			
Wareneingangsdatum: *Date of receipt*:	**08.16.2016**			
Prüfmuster-Nr.: *Test sample No.*:	**A000480508-001**			
Prüfzeitraum: *Testing period*:	**02.17.2017 to 02.17.2017**			
Ort der Prüfung: *Place of testing*:	**MRT Technology(Suzhou) Co., Ltd.**			
Prüflaboratorium: *Testing laboratory*:	**TÜV Rheinland (Shanghai) Co., Ltd.**			
Prüfergebnis*: *Test result**:	**Pass**			

geprüft von / *tested by*:			**kontrolliert von** / *reviewed by*:		
03.07.2017	Elliot Zhang / Senior Project Engineer	Elliot Zhang	03.07.2017	Shi Li / Section Manager	SL
Datum *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*	**Datum** *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*

Sonstiges / *Other*

Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery*:	Prüfmuster vollständig und unbeschädigt *Test item complete and undamaged*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
Legend:	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

TEST SUMMARY

5.1.1 ANTENNA REQUIREMENT
RESULT: Pass

5.2.1 CONDUCTED EMISSION
RESULT: Pass

5.3.1 RADIATED EMISSIONS
RESULT: PASS

Contents

1. General Remarks

1.1 Complementary Materials

Null.

2. Test Sites

2.1 Test Facilities

MRT Technology (Suzhou) Co., Ltd.

D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China

The used test equipment is in accordance with CISPR 16 for measurement of radio interference.

The Federal Communications Commission has reviewed the technical characteristics of the radiated and conducted emission facility, and has found these test facilities to be in compliance with the requirements of section 2.948 of the FCC rules. The description of the test facility is listed under FCC registration number 809388.

The Industry Canada has reviewed the technical characteristics of the radiated and conducted emission facility, and has found these test facilities to be in compliance. The description of the test facility is listed under chambers filing number 11384A.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radiated Test Equipments

Instrument	Manufacturer	Type No.	Asset No.	Cali. Due Date
Spectrum Analyzer	Agilent	E4447A	MY45300136	12.08.2017
EMI Test Receiver	R&S	ESR7	101209	11.03.2017
Preamplifier	Schwarzbeck	BBV 9721	9721-008	04.16.2017
Preamplifier	Agilent	83017A	MY53270040	03.29.2017
Loop Antenna	Schwarzbeck	FMZB1519	1519-041	12.14.2017
TRILOG Antenna	Schwarzbeck	VULB9162	9162-047	11.07.2017
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1167	11.07.2017
Broadband Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170549	01.04.2018
Digital Thermometer & Hygrometer	Minggao	N/A	N/A	11.30.2017

Conducted Test Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MY52090106	05.08.2017
USB Wideband Power Sensor	Boonton	55006	8911	05.08.2017
Temperature/Humidity Meter	Yuhuaze	N/A	N/A	12.20.2017

Conducted Emission Test Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Due Date
EMI Test Receiver	R&S	ESR7	101209	11.03.2017
Two-Line V-Network	R&S	ENV216	101683	11.03.2017
Two-Line V-Network	R&S	ENV216	101684	11.03.2017
Temperature/Humidity Meter	Yuhuaze	N/A	N/A	12.20.2017

2.3 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

2.5 Measurement Uncertainty

Table 2: Measurement Uncertainty

Measurement Type	Frequency	Uncertainty
Antenna Port Conducted Emission	< 1GHz	±0.39dB
	> 1GHz	±0.68dB
Radiated Emission	30MHz - 1GHz	±5.34dB
	> 1GHz	±5.40dB

3. General Product Information

3.1 Product Function and Intended Use

The EUT (Equipment Under Test) is a Swimming train machine which consist of a Remote controller and a swimming train machine.

The aim of this report is to evaluate the Part 15B of the Swimming train machine.

For details refer to the User Manual and Circuit Diagram.

3.2 Ratings and System Details

	Transmitter	Receiver
Equipment Class	DSC	CYY
Type Designation	SM24101	SM24101
Frequency Band	315MHz	315MHz
Antenna Type	PCB antenna	External antenna
Antenna Gain	2.5dBi	2.5dBi
Rated Voltage	DC 3V (Battery: 1X3V CR2032)	AC 120V 60Hz

Note:

1. The external antenna used for the receiver is supplied by ASIAN CREATION COMMUNICATION CO.,LTD. And the model no. is AC-Q315.
2. This report is just for the receiver part. For the transmitter part, please refer to the report No. 15080254 001 issued by TÜV Rheinland (Shanghai) Co.,Ltd.

3.3 Independent Operation Modes

The basic operation modes are:

A. On-The device was powered on and the receiver was set into receive mode and the device was set into normal operating mode.
B. Off-The receiver was powered off.

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Bill of Material
- PCB Layout
- Photo Document
- Circuit Diagram
- Instruction Manual
- Rating Label

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.4: 2014.

Software used for testing: Null.

4.3 Special Accessories and Auxiliary Equipment

Null.

4.4 Countermeasures to achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

5. Test Results

5.1 Antenna Requirement

5.1.1 Antenna Requirement

RESULT: **Pass**

According to the manufacturer declared, the external antenna supplied by ASIAN CREATION COMMUNICATION CO.,LTD (Model No. AC-Q315) uses a unique coupling to the intentional radiator. And the directional gain of antenna is 2.5dBi. Therefore the EUT is considered sufficient to comply with the provision.

Table 3: Antenna Requirement

FCC 15.203 – Antenna Requirement 1		
Requirement:	No antenna other than that furnished by the responsible party shall be used with the device. ☐ Use of a permanently attached antenna, or ☒ Use an antenna that uses a unique coupling to the intentional radiator.	
Results:	Antenna connect type:	I-PEX
Verdict:	PASS	

FCC 15.204 – Antenna Requirement 2	
Requirement:	An intentional radiator may be operated only with the antenna with which it is authorized. If an antenna is marketed with the intentional radiator, it shall be of a type which is authorized with the intentional radiator.
Results:	Only one type antenna can be used
Verdict:	PASS

5.2 Emission in the Frequency Range up to 30MHz

5.2.1 Conducted Emission

RESULT: **Pass**

Date of testing	:	02.17.2017
Test standard	:	FCC Part 15.207
Kind of test site	:	Shilding room
Operation Mode	:	A

Figure 1: Conducted Emission, L

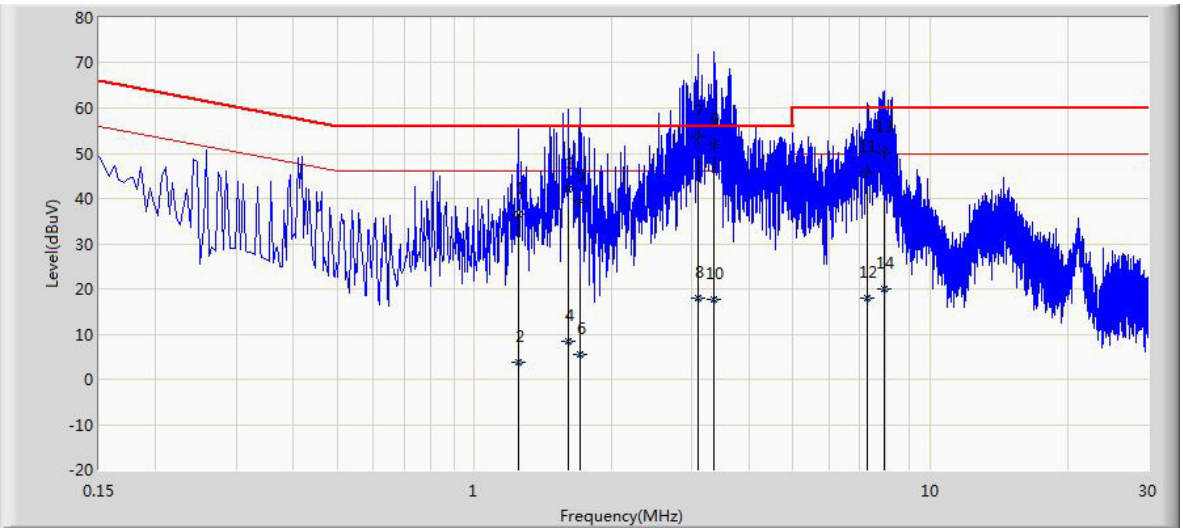

Table 4: Conducted Emission, L

Frequency [MHz]	Measure Level [dBuV]	Reading Level [dBuV]	Over Limit [dB]	Limit [dBuV]	Factor [dB]	Type
1.246	36.398	26.498	-19.602	56.000	9.900	QP
1.246	3.861	-6.039	-42.139	46.000	9.900	AV
1.606	42.054	32.168	-13.946	56.000	9.886	QP
1.606	8.461	-1.425	-37.539	46.000	9.886	AV
1.702	39.495	29.614	-16.505	56.000	9.881	QP
1.702	5.378	-4.503	-40.622	46.000	9.881	AV
3.085	53.660	43.800	-2.340	56.000	9.859	QP
3.086	17.960	8.100	-28.040	46.000	9.859	AV
3.342	51.996	42.100	-4.004	56.000	9.896	QP
3.342	17.796	7.900	-28.204	46.000	9.896	AV
7.250	45.716	35.553	-14.284	60.000	10.162	QP
7.250	18.020	7.857	-31.980	50.000	10.162	AV
7.914	50.069	39.900	-9.931	60.000	10.169	QP
7.914	20.069	9.900	-29.931	50.000	10.169	AV

Figure 2: Conducted Emission, N

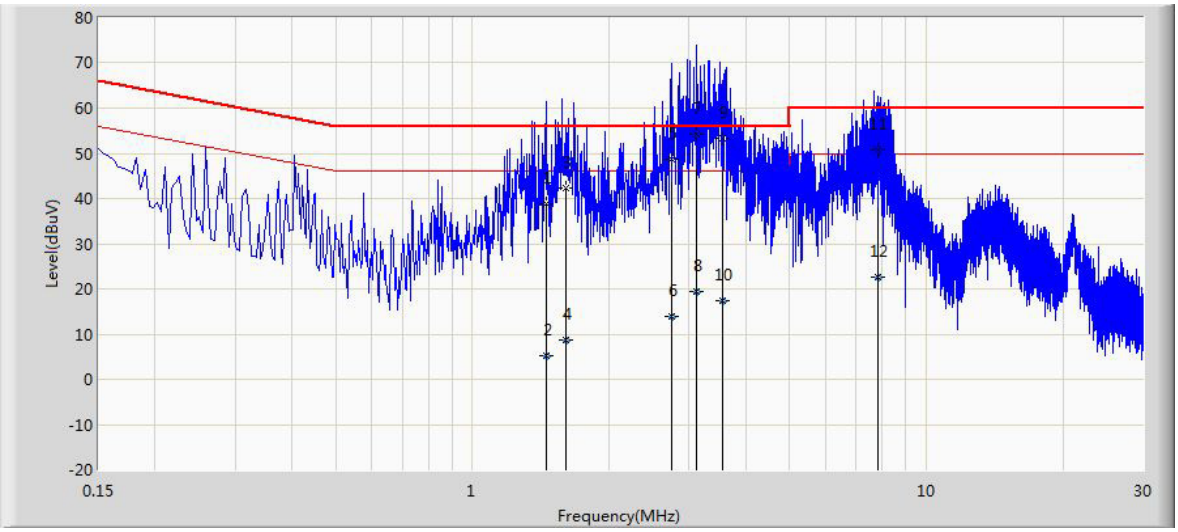

Table 5: Conducted Emission, N

Frequency [MHz]	Measure Level [dBuV]	Reading Level [dBuV]	Over Limit [dB]	Limit [dBuV]	Factor [dB]	Type
1.451	38.892	29.000	-17.108	56.000	9.892	QP
1.451	5.092	-4.800	-40.908	46.000	9.892	AV
1.604	42.287	32.400	-13.713	56.000	9.887	QP
1.604	8.587	-1.300	-37.413	46.000	9.887	AV
2.747	48.753	38.900	-7.247	56.000	9.853	QP
2.747	13.853	4.000	-32.147	46.000	9.853	AV
3.109	54.164	44.300	-1.836	56.000	9.864	QP
3.109	19.364	9.500	-26.636	46.000	9.864	AV
3.561	53.320	43.400	-2.680	56.000	9.921	QP
3.561	17.420	7.500	-28.580	46.000	9.921	AV
7.839	50.791	40.600	-9.209	60.000	10.191	QP
7.839	22.491	12.300	-27.509	50.000	10.191	AV

5.3 Emission in the Frequency Range above 30MHz

5.3.1 Radiated Emissions

RESULT: **PASS**

Date of testing	:	02.17.2017
Test standard	:	FCC Part 15.209
Kind of test site	:	3m Semi-Anechoic Chamber
Operation Mode	:	A

Table 6: Radiated Emission

Frequency [MHz]	Measure Level [dBuV/m]	Reading Level [dBuV]	Over Limit [dB]	Limit [dBuV/m]	Factor [dB]	Type	Ant. Pol.
46.975	25.515	11.386	-14.485	40.000	14.129	QP	H
57.160	24.469	10.903	-15.531	40.000	13.566	QP	H
72.680	25.898	14.816	-14.102	40.000	11.082	QP	H
89.170	26.994	16.805	-16.506	43.500	10.189	QP	H
149.759	31.228	16.094	-12.272	43.500	15.134	QP	H
179.865	30.444	17.621	-13.056	43.500	12.823	QP	H
46.975	31.753	17.624	-7.247	40.000	14.129	QP	V
53.765	32.125	18.330	-7.875	40.000	13.795	QP	V
71.710	32.486	21.256	-7.514	40.000	11.230	QP	V
137.670	31.249	16.948	-12.251	43.500	14.301	QP	V
149.795	35.454	20.318	-8.046	43.500	15.136	QP	V
167.740	33.659	19.190	-9.841	43.500	14.469	QP	V

6. List of Figures

7. List of Tables